Faculty of Computing and Information Technology



Spring 2018

CPIT-475 Syllabus

Catalog Description

CPIT-475 Wireless Data Networks 3 (Theory: 3, Lab: 0, Practical: 1) Credit: Prerequisite: CPIT-370 Classification: Elective

The objective of this course is to explore principles of IT Infrastructure, Networking and System Administration. Topics include cellular architecture, GSM, GPRS, UMTS, 802.11 WLAN Course Learning Outcomes (CLO) infrastructure designing, and planning and administration.

Class Schedule

Meet 50 minutes 3 times/week or 80 minutes 2 times/week Lab/Tutorial 90 minutes 1 times/week

William Stallings, , "Wireless Communications and Networks", Prentice Hall; 2 edition (2005)

ISBN-13 9780131967908 ISBN-10 0131967908

Grade Distribution

Week	Assessment	Grade %
2	Graded Lab Work 1	2
3	Quiz 1	5
4	Graded Lab Work 2	2
6	Exam 1	15
8	Quiz 2	5
8	Graded Lab Work 3	2
10	Quiz 3	5
10	Graded Lab Work 4	2
11	Exam 2	15
11	Graded Lab Work 5	2
15	Lab Exam	10
16	Exam	35

Last Articulated

December 18, 2017

Relationship to Student Outcomes

a	b	c	d	e	f	g	h	i	j	k	1	m	n
x												х	

By completion of the course the students should be able to

- 1. Explain the time domain concepts and frequency domain concepts related to a periodic electromagnetic signal (a)
- 2. Explain the relationship between capacity and bandwidth (a)
- 3. Analyze the physical challenges inherent in wireless communication channels. (m)
- 4. Differentiate among different propagation modes of an electromagnetic signal. (m)
- 5. Distinguish various propagation antennas and describe their respective characteristics. (m)
- 6. Compare the basic characteristics of signal encoding techniques used in communications, such as FM, PM and PAM. (m)
- 7. Discriminate the FHSS and DSSS (m)
- 8. Differentiate between various switching methods such as FDM, TDM. (m)
- 9. Compare methods of error detection and correction for wireless communication. (a)
- 10. Discover the characteristics of different satellite orbits (m)
- 11. Explain the different capacity allocation strategies for satellite communication (m)
- 12. Describe the basic concepts for cellular networks including frequency reuse, cell shape, handover (a)
- 13. Compare first generation and second generation architectures of cellular networks (m)
- 14. Describe IEEE 802.11 Wireless standard. (m)
- 15. Explain the IEEE 802.11 Architecture with all details. (a)
- 16. Describe Bluetooth techniques, application, standard and Architecture. (m)

Coordinator(s)

Dr. Fatma Bouabdallah. Associate Professor

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Department of Information Technology

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Topics Coverage Durations

Topics	Weeks
Transmission Fundamentals	2
Antennas and Propagation	2
Signal Encoding Techniques	1
Spread Spectrum	1
Coding and Error Control	1
Satellite Communication	1
Cellular Network Architecture	1
Second Generation (GSM) Network/Third Generation (UMTS) Network	1
Wireless LAN	1
Wi-Fi and IEEE 802.11 Standard	2
Bluetooth and IEEE 802.15 Standard	2